

## Claims

We claim:

1. A system for expanding the delivery of telecommunication services, comprising:

a master unit, coupled to a wide area network (WAN), operable to process telecommunication service signals for communication with the WAN and with a fixed number of telecommunication service interfaces at the master unit;

an expansion unit, coupled via an expansion link to the master unit, comprising an expansion set of telecommunication service interfaces, the expansion unit operable to transmit telecommunication service signals in the upstream direction via the expansion link for processing by the master unit and to receive telecommunication service signals in the downstream direction from the master unit via the expansion link for delivery to the expansion set of telecommunication service interfaces.

2. The system of Claim 1 further comprising a second expansion unit, coupled to the expansion unit via a second expansion link, the second expansion unit comprising a second expansion set of telecommunication service interfaces and operable to transmit telecommunication service signals in the upstream direction via a combination of the expansion unit and the pair of expansion links for processing by the master unit and to receive telecommunication service signals in the downstream direction from the master unit via a combination of the expansion unit and the pair of expansion links for delivery to the second expansion set of telecommunication service interfaces.

3. The system of Claim 1, wherein the expansion link comprises a flexible cable supporting a serial communications interface.

4. The system of Claim 1, wherein the WAN comprises an Asynchronous Transfer Mode (ATM)-compatible network, the telecommunication service signals comprise ATM cells, and the master unit comprises:

a Plain Old Telephone Service (POTS) interface, coupled to a Digital Line Carrier (DLC) system, for exchanging POTS signals between the DLC system and the master unit;

a controller for processing ATM cells;

a T1 interface, coupled to the ATM-compatible network, for exchanging ATM cells between the ATM-compatible network and the controller;

a plurality of local ATM-compatible interfaces for communicating ATM cells and POTS signals to subscribers serviced by the master unit;

an expansion function, coupled to the controller, the ATM-compatible interfaces and an expansion port, for communicating ATM cells in the upstream and the downstream directions via the expansion port and for communicating ATM cells with the local ATM-compatible interfaces.

5. The system of Claim 1, wherein the expansion unit comprises:

a plurality of remote ATM-compatible interfaces; and

an expansion function, coupled with an input expansion port and an output expansion port, for communicating ATM cells in the upstream and downstream directions via the input and output expansion ports and for communicating ATM cells with the remote ATM-compatible interfaces, the input expansion port operable for coupling to the master unit, the output expansion port operation for coupling to another expansion unit.

6. A method for expanding the delivery of ATM-compatible services, comprising:

processing at a master unit a plurality of ATM cells for communication with an ATM-compatible network and for communication with local ATM-compatible interfaces at the master unit and an expansion set of remote ATM-compatible interfaces at an expansion unit coupled to the master unit via an expansion link;

communicating ATM cells in the downstream direction from the master unit to the expansion unit via the expansion link for delivery to the remote ATM-compatible interfaces at the expansion unit;

communicating ATM cells in an upstream direction from the expansion unit to the master unit via the expansion link for processing by the master unit.

7. A system for expanding the delivery of ATM-compatible services, comprising:

a master unit, coupled to an ATM-compatible network, operable to process ATM cells for communication with the ATM-compatible network and with a fixed number of ATM-compatible interfaces at the master unit;

a first expansion unit, coupled via a first expansion link to the master unit, comprising an expansion set of ATM-compatible interfaces, the first expansion unit operable to transmit ATM cells in the upstream direction via the first expansion link for processing by the master unit and to receive ATM cells in the downstream direction from the master unit via the first expansion link for delivery to the expansion set of ATM-compatible interfaces; and

a second expansion unit, coupled to the first expansion unit via a second expansion link, the second expansion unit comprising a second expansion set of ATM-compatible interfaces and operable to transmit ATM cells in the upstream direction via a combination of the first expansion unit and the pair of expansion links for processing by the master unit and to receive ATM cells in the downstream direction from the master unit via a the combination of the first expansion unit and the pair of expansion links for delivery to the second expansion set of ATM-compatible interfaces.